

Contains Duplicate

Given: integer array nums

Return: true if duplicate found, else false

Time & Space: $O(n)$

To maintain time $O(n)$, we must only pass an element once each. In order to check if a previous integer has already been seen, we must store all unique elements, which is why we need $O(n)$ space.

We can iterate the input vector, storing each unique integer in an unordered_set. If we encounter an integer already seen, we will return true, if we finish n items, we return false.